CHAPTER 4: FINDINGS

SURVEY AND TESTING SUMMARY

Fieldwork during the survey and testing parts of the investigation consisted of four elements, two on land and two in the streambed of Gravelly Run. The land elements consisted of: 1) the mapping of existing surface features within the proposed right-of-way; and 2) the excavation of 39 shovel tests on the north and south sides of the modern road, and the excavation of two 1 m^2 test units on the northeast bank of the bridge abutment. The underwater elements consisted of: 1) the survey and mapping of features in the streambed to the north and south of the bridge, as well as beneath the bridge span; and 2) the excavation of test units in the streambed in association with features recorded there. Finally, a sketch map was completed of the mill complex north of the road, including the 18th century dam, related race structures, the 19th century dam, and several quarry and borrow pits.

Shovel Tests

The purpose of shovel testing was to determine the character and extent of the fill associated with the berm supporting S 46: how much of the material was the result of modern road construction; how much, if anything, remained of the original dam fill; and whether there were deposits that might indicate the potential for mill related structures. Shovel tests were excavated in two transects (Figure 40). Transect A, consisting of 18 tests, was excavated on a 15 m interval along the north side of the road, between 5 and 10 m from the edge of the blacktop. Transect B, consisting of 16 tests, was excavated on the south side of the road, on a similar 15 m interval between 5 and 10 m from the edge of the blacktop. Five additional tests, referred to collectively as Transect J, were excavated on a judgmental basis in the immediate vicinity of the bridge.

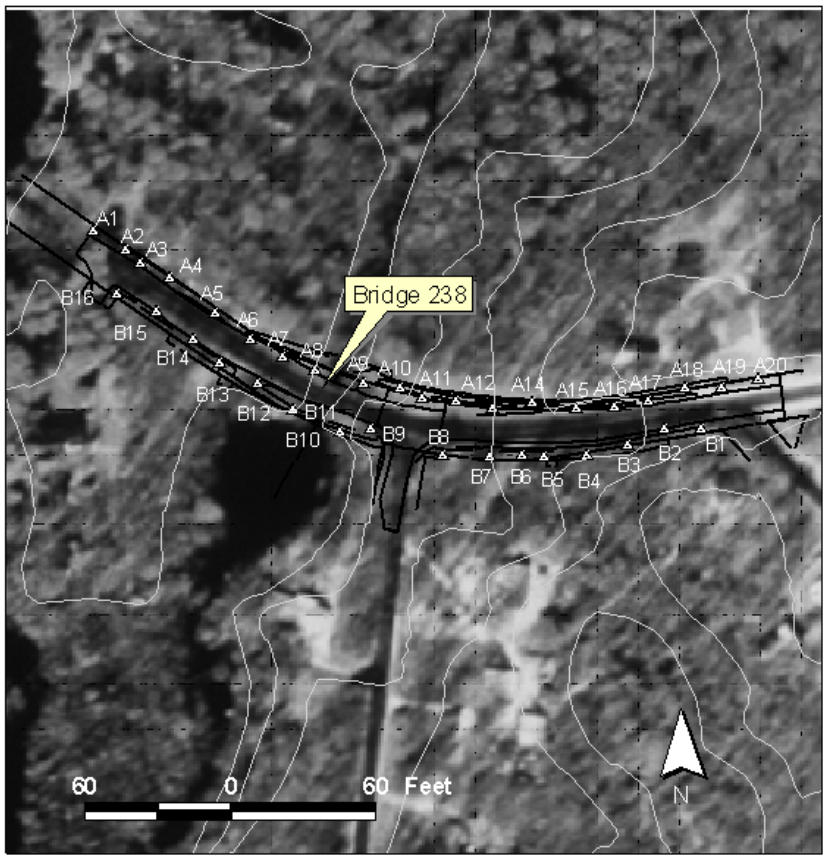

Figure 40: STP Locations

Transect A:

Most of the shovel tests on or near the berm that was constructed for the bridge showed truncated and disturbed profile sections, with fill related to the mill dam or to more recent road construction directly overlying cut subsoil. Exceptions were several tests with buried A- and B-horizons (A5 and A8, west of the bridge, and A11-13, east of the bridge). The A-horizon probably represented ground surface prior to road or dam construction. Several tests well east of the bridge bore no evidence of fill, implying that there had been little disturbance from road construction: A14, A16-18 each contained apparently intact, zonal profiles with A-, B- and C-horizons; A19-20 were in modern garden patches and contained a cultivated layer overlying subsoil. Shovel tests A3 and A4 fell in the entrance to a private driveway, and thus were not excavated, making the total number of tests excavated on the transect 18.

Transect B:

The shovel tests farthest east of the bridge on the south side of SR46 (shovel tests B1-6), contained fill from surface to base, approximately 1 m below grade in each case. Tests B7-9, located on either side of Old Meadow Road (intersecting SR46 from the south), showed truncated or partially truncated natural profiles, with E- and B-horizons

present below varying amounts of fill. Shovel test B10, east of the bridge contained sandy fill to a depth of at least 110 cm. Shovel tests west of the bridge, B11-15, contained fill and/or redeposited sand to depths of 100-130 cm or greater. There was little indication in these excavations as to the ultimate source of the sandy fill, whether from the mill dam or more recent road improvements.

Transect J:

A series of judgmentally placed shovel tests was located near the bridge. They revealed fill that typically overlay the original alluvial deposits associated with the edge of the stream. Shovel test J1 was located on low ground southwest of the bridge abutment, and encountered fill to over 1 m. Shovel test J2 was also placed on low ground, at the base of the berm northwest of the bridge abutment. Organic-stained alluvial sand, representing the stream edge, was located 15 cm below surface. Shovel test J3 was placed on the edge of the berm northeast of the bridge abutment, where fill and redeposited topsoil were documented to at least 1.3 m below grade. Shovel test J4 as located on low ground at the base of the berm, northeast of the abutment. Fill was recorded in this test to a depth of 85 cm, followed by intact alluvium associated with the original bank of the stream. As in the shovel tests in Transect B, there was no clear evidence of the source of the fill in these excavations. Shovel test J5 was placed north of J4, on low ground beyond an erosional ditch that cut toward the northwest. Intact alluvium was recorded in this test below a thin topsoil layer.

Summary

In general, cut-and-fill profiles were recorded in areas away from the bridge. There appeared to have been more disturbance south of the road, as evidenced by deeper fill deposits, and less disturbance north of the road and at the east end of the survey area, as the road climbed slowly out of the wide stream valley. Near the bridge, fill lay over wetland deposits at the original edge of the stream. There was no direct evidence of early construction fill or structural features at any point along the portions of the right-of-way that were surveyed.

Test Units

Two contiguous 1-m^2 excavation units, Test Units 4 and 5, were excavated on the north edge of the berm (Figure 41). They were placed near the base of the slope to provide a cross section of the berm at a point where hand excavation could reach the underlying, natural deposits. The profile section showed a sloping layer of sandy fill that appeared to be associated with bridge construction, based on discarded lumber occurring in the deposit. The color, texture and depth of this deposit implied that the clean fill observed in shovel tests north and south of the road was probably related to the modern bridge, as well. The modern, sandy fill overlay additional level fills of undetermined origin that contained gravel and sandy clay. At the base of the profile, redeposited topsoil mixed with clay fill lay on top of intact alluvium, the latter representing the original bank of the stream. These lower fill layers could have been remnants of the 19th-century dam, although there was no directly corroborating data.

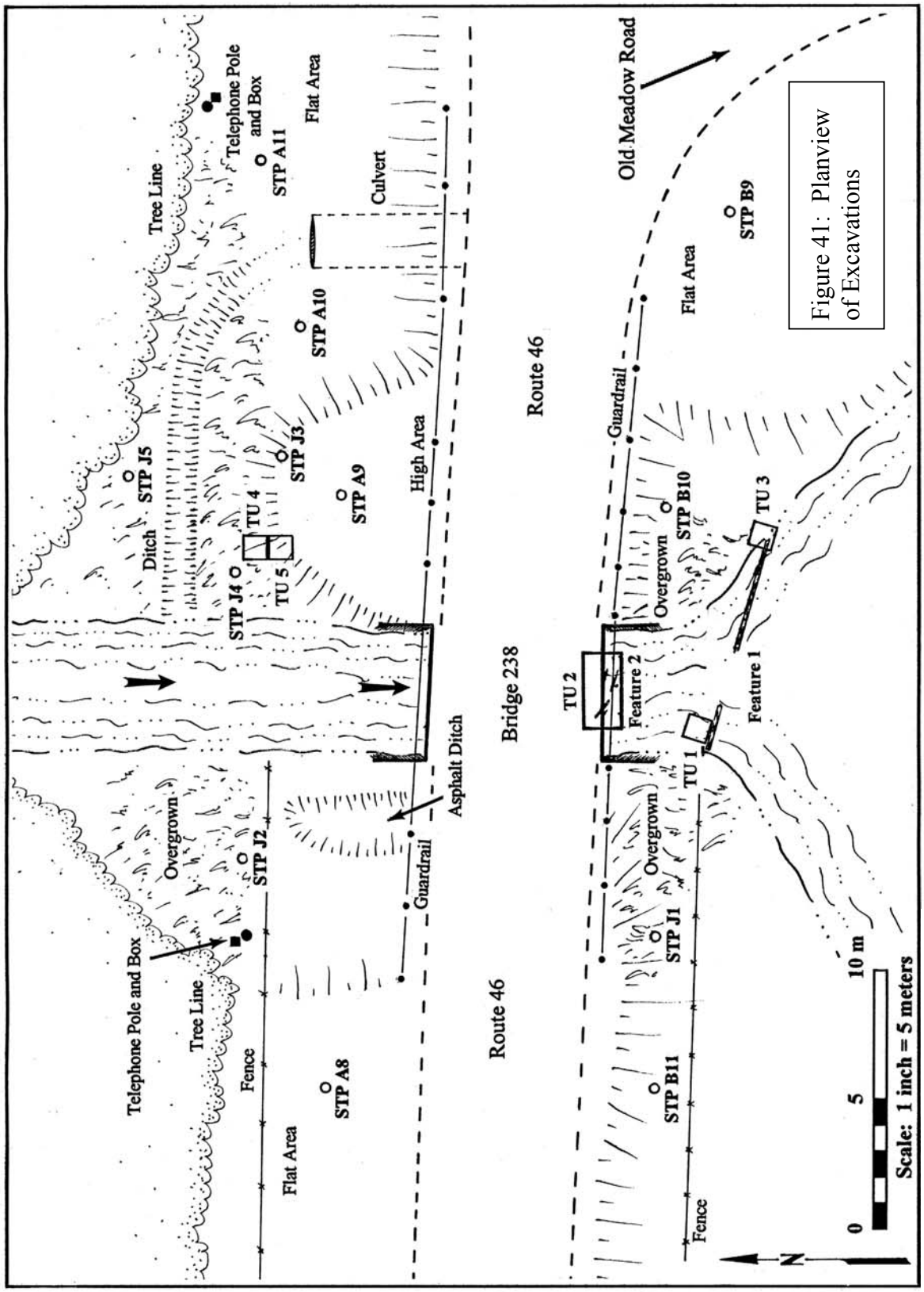

Figure 41: Planview of Excavations

Underwater Components

Pedestrian survey of the banks and channel of the stream was conducted at lowest tidal ebb. In six days of on-site activity, the maximum tide differential was measured as 2.8 feet. Due to relatively brisk currents, particularly when tidal ebb combined with the normal stream flow, silt accumulation in the stream was minimal and visibility was good. Thus, the survey included visual inspection of the streambed. In addition, a solid metal probe was used to map the hard-packed alluvial deposits forming the natural base of the stream channel, on the assumption that soft, silty deposits might signal infilled mill features, such as a wheel pit. No such features were located, although the hard sandy alluvium in the channel did give way to deep silt south of the bridge at the edge of a large quarry pit. Long-time area residents noted that the quarry pit is at least 12 feet in depth (Glen Mellin, personal communication 1998).

Three wood plank features were observed at the southern edge of the bridge. They were assigned feature numbers in order of documentation, and are described in detail in the following section of the report.